We Claim:

1. A coaxial propulsion system comprising;
   a. An engine
   b. A primary propeller;
   c. A secondary propeller, in series with said primary propeller;
   d. A flow control element; configured to remove swirl and mounted between said primary propeller and said secondary propeller;
   e. A shroud,

   wherein said shroud directs the output of said primary propeller through said flow control element and into said secondary propeller.

2. A coaxial propulsion system as claimed in claim 1 wherein said shroud further directs the thrust developed by said coaxial propulsion system.
3. A coaxial propulsion system as claimed in claim 1 wherein said engine is connected to said primary propeller and said secondary propeller through a common drive shaft.
4. A coaxial propulsion system as claimed in claim 1 wherein said drive shaft is rotationally supported by a bearing integral to said flow control element.
5. A coaxial propulsion system as claimed in claim 1 wherein said primary propeller and said secondary propeller rotate in the same direction.
6. A coaxial propulsion system as claimed in claim 1 wherein said primary propeller and said secondary propeller rotate in opposite directions.
7. A coaxial propulsion system as claimed in claim 1 wherein said flow control element is configured to substantially remove swirl from the airflow before it enters said secondary propeller.
8. A coaxial propulsion system as claimed in claim 1 wherein said flow control element is further configured to provide lift.
9. A coaxial propulsion system as claimed in claim 1 wherein said primary propeller and said secondary propeller may be of fixed or variable pitch.
10. A coaxial propulsion system as claimed in claim 1 wherein said secondary propeller may be maintained at a slightly higher pitch than said primary propeller to take advantage of the higher efficiencies associated with said secondary propeller.

11. A coaxial propulsion system as claimed in claim 1 wherein said secondary propeller is positioned a further distance from said flow control element to reduce acoustic noise.
12. A coaxial propulsion system as claimed in claim 1 wherein said primary propeller and said secondary propeller are fans.

13. A twin engine coaxial propulsion system comprising;

    a. A primary engine;
    b. A primary propeller;
    c. A secondary engine;
    d. A secondary propeller, in series with said primary propeller;
    e. A flow control element configured to reduce swirl and mounted between said primary propeller and said secondary propeller;
    f. A shroud,

    wherein said shroud directs the output of said primary propeller through said flow control element and into said secondary propeller, and wherein said primary engine is connected to said primary propeller through a primary drive shaft and said secondary engine is connected to said secondary propeller through a secondary drive shaft,
14. A twin engine coaxial propulsion system as claimed in claim 13 wherein said shroud further directs the thrust developed by said twin engine coaxial propulsion system.
15. A twin engine coaxial propulsion system as claimed in claim 13 wherein said twin engine coaxial propulsion system is configured to maintain said thrust above a minimum level at all times, in the event of the failure of said primary propeller or said secondary propeller.
16. A twin engine coaxial propulsion system as claimed in claim 13 wherein said drive shafts are rotationally supported by a bearing integral to said flow control element.
17. A twin engine coaxial propulsion system as claimed in claim 13 wherein said primary drive shaft and said secondary drive shaft are coaxial.

18. A twin engine coaxial propulsion system as claimed in claim 13 wherein said primary engine and said secondary engine are coaxial.
19. A twin engine coaxial propulsion system as claimed in claim 13 wherein said primary propeller and said secondary propeller rotate in the same direction.
20. A twin engine coaxial propulsion system as claimed in claim 13 wherein said primary propeller and said secondary propeller rotate in opposite directions.
21. A twin engine coaxial propulsion system as claimed in claim 13 wherein said flow control element is configured to substantially remove swirl from the airflow before it enters said secondary propeller.
22. A twin engine coaxial propulsion system as claimed in claim 13 wherein said flow control element is further configured to provide lift.
23. A twin engine coaxial propulsion system as claimed in claim 13 wherein said primary propeller and said secondary propeller may be of fixed or variable pitch.
24. A twin engine coaxial propulsion system as claimed in claim 13 wherein said secondary propeller may be maintained at a slightly higher pitch than said primary propeller to take advantage of the higher efficiencies associated with said secondary propeller.
25. A twin engine coaxial propulsion system as claimed in claim 13 wherein said secondary propeller is positioned a further distance from said flow control element to reduce acoustic noise.
26. A twin engine coaxial propulsion system as claimed in claim 13 wherein said primary propeller and said secondary propeller are fans.
27. A coaxial jet fan system comprising;
    a. A jet engine;
    b. A primary fan;
    c. A secondary fan, in series with said primary fan;
    d. A flow control element configured to reduce swirl and mounted between said primary fan and said secondary fan;
    e. A shroud, said shroud directing the output of said primary fan through said flow control element and into said secondary fan; said shroud further directing the bypass thrust and the jet thrust developed by said high performance coaxial jet fan system;

Wherein said jet engine is connected to said primary fan and said secondary fan through a common drive shaft.

28. A high performance coaxial jet fan system as claimed in claim 27 wherein said drive shaft is rotationally supported by a bearing integral to said flow control element.
29. The high performance coaxial jet fan system as claimed in claim 27 wherein said primary fan and said secondary fan rotate in the same direction.
30. The high performance coaxial jet fan system as claimed in claim 27 wherein said primary fan and said secondary fan rotate in opposite directions.
31. The high performance coaxial jet fan system as claimed in claim 27 wherein said flow control element is configured to substantially remove swirl from the airflow before it enters said secondary fan.
32. The high performance coaxial jet fan system as claimed in claim 27 wherein said flow control element is further configured to provide lift.
33. The high performance coaxial jet fan system as claimed in claim 27 wherein said primary fan and said secondary fan may be of fixed or variable pitch.
34. The high performance coaxial jet fan system as claimed in claim 27 wherein said secondary fan may be maintained at a slightly higher pitch than said primary fan to take advantage of the higher efficiencies associated with said secondary fan.
35. The high performance coaxial jet fan system as claimed in claim 27 wherein said secondary fan is positioned a further distance from said flow control element to reduce acoustic noise.
36. The high performance coaxial jet fan system as claimed in claim 27 wherein said primary fan or said secondary fan may be disconnected from said drive shaft to reduce said bypass thrust.
37. The high performance coaxial jet fan system as claimed in claim 27 wherein said jet engine may be two jet engines, and said drive shaft may be two drive shafts.

38. A variable bypass coaxial jet fan system comprising;
    a. An jet engine;
    b. A primary fan;
    c. A secondary fan, in series with said primary fan;

d. A flow control element configured to reduce swirl and mounted between said primary fan and said secondary fan;
e. A primary shroud, said shroud directing the output of said primary fan through said flow control element and into said secondary fan; said shroud further directing the primary bypass thrust;
f. A secondary shroud, said secondary shroud directing the secondary bypass thrust; said secondary shroud further directing the jet thrust developed by said high performance coaxial jet fan system;

Wherein said jet engine is connected to said primary fan and said secondary fan through a common drive shaft.

39. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said drive shaft is rotationally supported by a bearing integral to said flow control element.
40. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said primary fan and said secondary fan rotate in the same direction.
41. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said primary fan and said secondary fan rotate in opposite directions.
42. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said flow control element is configured to substantially remove swirl from the airflow before it enters said secondary fan.
43. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said flow control element is further configured to provide lift.
44. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said primary fan and said secondary fan may be of fixed or variable pitch.
45. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said secondary fan may be maintained at a slightly higher pitch than said primary fan to take advantage of the higher efficiencies associated with said secondary fan.
46. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said secondary fan is positioned a further distance from said flow control element to reduce acoustic noise.

47. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said primary fan may be disconnected from said drive shaft to reduce said primary bypass thrust.
48. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said secondary fan may be disconnected from said drive shaft to reduce said secondary bypass thrust
49. The variable bypass coaxial jet fan system as claimed in claim 38 wherein said jet engine may be two jet engines, and said drive shaft may be two drive shafts.